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| 10/777,754 | 02/13/2004 | Michael Philip Fitton | 248966US2CRL | 5325 |

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| EXAMINER | |
|---|---|
| TRINH, TAN H | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2618 | |

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/777,754 | FITTON ET AL. | |
| | Examiner | Art Unit | |
| | TAN TRINH | 2618 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *13 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2-13-2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement (IDS) submitted on 02-13-2004, the information disclosure statement has been considered by the examiner.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 16 is rejected under 35 U.S.C. 102(e) as being anticipated by Bims (U.S. Pub. No. 2005/0153719).

Regarding claim 16, Bims teaches a repeater point for a wireless communications network comprising an access point and a number of repeater points for communicating with a mobile terminal (see figs. 3, 5A and 6A, access point 301 (switch 301), repeaters 302-1 and 302-2, and mobile terminal 601, page 2, sections [0034-0036]); comprising: a transceiver for communicating with the mobile terminal and a transceiver for communicating with the access point in order to relay signals between the terminal and the access point (see figs. 5A and 6A, the communication link with access point to repeaters and repeater to mobile, pages 5-6, sections [0075-0077 and 0080-0081]. Sine repeater receive/transmit the signal (packets), relay signals that is the function of transceiver); and a signal quality measurement apparatus for determining a

quality measure of signals sent by the terminal and received by the repeater point (see figs. 4A and 5A, and page 3, section [0041-0042 and 0046]. Since the good RSSI signal and signal without errors that is the quality signal), and arranged to forward the quality measure to the access point (see page 4, sections [0049-0051 and 0057], and page 5, section [0067]).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4, 6-8, 10-11 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bims (U.S. Pub. No. 2005/0153719) in view of Trompower (U.S. Patent No. 6,132,306).

Regarding claim 1, Bims teaches a wireless communications network for communicating with a mobile terminal (see figs. 2-3, 5A and 6A, page 1, section [0004 and 0006]); comprising: a number of repeater points having overlapping coverage areas and each comprising transceiver for communicating wirelessly with the mobile terminal (see fig. 3, 5A and 6A, repeater points 302-1, 302-2 and 302-3, and mobile terminal 601, pages 1- 2, sections [0025 and 0033-0035]. Sine the repeater points transmit / receive and the signal (packets) that is the function of transceiver); an access point comprising transceiver for communicating with the repeater points (see fig. 3, access point 301 (switch 301), page 2, section [0036], pages 5-6, sections [0075-0077, 0080-0081 and 0085]. Sine the access point receive and transmit the signal (packets) that is the

function of transceiver); the repeater points further comprising means for relaying signals between the terminal and the access point (see fig. 6A, repeater points 302-1 and 302-2, relaying signals between access point 301 and terminal 601, page 3, section [0041], and page 6, sections [0080-0081]); signal quality measurement apparatus for determining a quality measure of signals sent by the terminal and received by the access point via the repeater points (see fig. 4A and page 3, sections [0041-0042 and 0046], page 4, sections [0049-0051 and 0057], and page 5, section [0067], since the good RSSI signal and signal without errors that is the quality signal); a selector for selecting one or more repeater points to relay transmission signals from the access point to the terminal (see figs. 5A-B and 6A, page 5-6, sections [0075-0081]), the selection based on the quality measures of the terminal signals received by the access point (see page 5-6, sections [0075-0081]), Bims teaches the access point and repeater point comprising transceiver, however, Bims does not mention the access point and repeater point comprising transceivers.

Trompower teaches the access point and repeater point comprising transceivers (see figs. 2, 6A, fig. 10, access point 210 with two transceivers 1027a and 1027b, fig. 12, repeater 215 with transceivers 1040 (1042 and 1044), col. 33, lines 38-51, and col. 36, lines 23-61).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of Bims and by the providing of the teaching of Trompower on the access point and repeater point comprising transceivers, thereto in order to configured the transmit and receive information on a different channel by separating transceivers (see Trompower col. 36, lines 54-61).

Regarding claim 2, Bims teaches an access point and repeaters for communicating with a mobile terminal (see figs. 3, 5A and 6A, access point 301 (switch 301), repeaters 302-1 and 302-2, and mobile terminal 601, page 2, sections [0034-0036]). But Bims does not mention wherein the access point transceiver comprise a wireless link between the access point and a repeater point and having directional antennas.

However, Trompower teaches wherein the access point transceiver comprises a wireless link between the access point and a repeater point and having directional antennas (see fig. 6A, access point (base station) 210, wireless link to repeater (wireless base station) 215, see col. 6, lines 37-48, and col. 21, lines 29-35, and col. 8, lines 43-47, with directional Yagi type antennas and see fig. 10, access point 210' and antennas 290a-b, col. 8, lines 43-47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of Bims and by the providing of the teaching of Trompower on the wireless link and directional antennas, thereto in order to provide a more elongated elliptical shaped cell coverage, and longer distance coverage (see Trompower col. 9, lines 26-30).

Regarding claim 3, the combination of Bims and Trompower teaches a network according to claim 1, Bims further teaches wherein the access point transceiver comprise a cable link between the access point and the repeater point (see fig. 3, access point 301 with cable link (CAT5 cabling) to repeater points 302-1-302-2 and 302-3, page 2 sections [0034 and 0036] with wire connection CAT5 cabling).

Regarding claim 4, the combination of Bims and Trompower teaches a network according to claim 1. Bims further teaches wherein the selector selects one or more repeater points having a received signal quality measure above a predetermined threshold, and the threshold corresponding to a line of sight signal path between the terminal and the access point via one or more repeater points (see figs. 5A-B, page 3, sections [0046-0047] and page 5, sections [0075-0077]. It is noted that since the repeater having the highest RSSI and power level is selected, the threshold is necessarily established).

Regarding claim 6, the combination of Bims and Trompower teaches a network according to claim 1. Bims further teaches wherein the signal quality measure of a terminal signal received via a repeater point is based on a predetermined quality of each combined wireless link between a the repeater point and the terminal and that the repeater point and the access point (see fig. 4A and page 3, section [0041-0042 and 0046], page 4, section [0049-0051 and 0057], and page 5, section [0067]).

Regarding claim 7, the combination of Bims and Trompower teaches a network according to claim 1. Bims further teaches wherein the signal quality measure of a terminal signal received via a repeater point is based on a predetermined quality of the received signals (see fig. 4A and page 3, section [0041-0042 and 0046]).

Regarding claim 8, see the rejection of claim 2, Trompower further teaches a network arranged such that the access point has a line of sight (LOS) path to each repeater point and

wherein the access point and the repeater points each comprises directional antennas (see figs. 2 and 6A, access point 210 is directly communication has a line of sight (LOS) path to repeater 215, and see 6A, col. 8, lines 43-47, and col. 9, lines 22-42, and also see fig. 10 and fig. 12 for antennas 290 for directional Yagi type antennas).

Regarding claim 10, Bims teaches an access point for a wireless communications network comprising a number of repeaters for communicating with a mobile terminal (see figs. 3, 5A and 6A, access point 301 (switch 301), repeaters 302-1 and 302-2, and mobile terminal 601, page 2, sections [0034-0036]); comprising: transceiver for communicating with the repeaters (see figs. 5A and 6A, the communication link from access point to repeaters and repeater to mobile, pages 5-6, sections [0075-0077 and 0080-0081]. Sine the access point receive and transmit the signal (packets) that is the function of transceiver); signal quality measurement apparatus for determining a quality measure of signals sent by the terminal and received by the access point via the repeater points (see fig. 4A and page 3, sections [0041-0042 and 0046], page 4, sections [0049-0051 and 0057], and page 5, section [0067]. Since the good RSSI signal and signal without errors that is the quality signal); a selector for selecting one or more repeater points to relay transmission signals from the access point to the terminal (see figs. 5A-B and 6A, page 5-6, sections [0075-0081]. Since the processing logic is compares the RSSI and test the repeater with highest RSSI for relay the packet on the selected repeater, that is the selector for selecting the repeater), the selection based on the quality measures of the terminal signals received by the access point (see page 5-6, sections [0075-0081]), Bims teaches the access point comprising transceiver. But Bims does not mention the access point comprising transceivers.

However, Trompower teaches the access point comprising transceivers (see figs. 2, 6A, fig. 10, access point 210 with two transceivers 1027a and 1027b, col. 33, lines 38-51).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of Bims and by the providing of the teaching of Trompower on the access point comprising transceivers, thereto in order to configured the transmit and receive information on a different channel by separating transceivers (see Trompower col. 36, lines 54-61).

Regarding claim 11, the combination of Bims and Trompower teaches a network according to claim 10. Bims further teaches wherein the selector selects one or more repeater points having a received signal quality measure above a predetermined threshold, and the threshold corresponding to a line of sight signal path between the terminal and the access point via one or more repeater points (see figs. 5A-B, page 3, sections [0046-0047] and page 5, sections [0075-0077]). It is noted that since the repeater having the highest RSSI and power level is selected, the threshold is necessarily established.

Regarding claim 13, the combination of Bims and Trompower teaches an access point according to claim 10, Bims further teaches wherein the signal quality measure of a terminal signal received via a repeater point is based on a predetermined quality of each combined wireless link between a repeater point and the terminal and that the repeater point and the access point (see fig. 4A and page 3, section [0041-0042 and 0046], page 4, section [0049-0051 and 0057], and page 5, section [0067]).

Regarding claim 14, the combination of Bims and Trompower teaches an access point according to claim 10, Bims further teaches wherein the signal quality measure of a terminal signal received via a repeater point is based on a predetermined quality of the received signals (see fig. 4A and page 3, sections [0041-0042 and 0046]).

Regarding claim 15, Bims teaches repeater points comprising antennas (see fig. 6A, repeater points with antennas, and fig. 11, dual-diversity antenna 1003). But Bims does not mention that is directional antennas.

However, Trompower teaches repeater points comprising directional antennas (see fig. 2, repeater points 215 a-c with directional antennas 292, col. 8, lines 43-47, and col. 9, lines 22-42, and also see fig. 12 for antennas 290, with directional Yagi type antennas).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of Bims and by the providing of the teaching of Trompower on directional antennas, thereto in order to provide a more elongated elliptical shaped cell coverage, and longer distance coverage (see Trompower col. 9, lines 26-30).

6. Claims 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bims (U.S. Pub. No. 2005/0153719) in view of Trompower (U.S. Patent No. 6,132,306) further in view of Proctor (U.S. Pub. No.2006/0041680).

Regarding claim 5, Bims teaches the direct access point transceiver communication with repeater points for transmitting to the terminal (see figs. 5A and 6A, the communication link

with access point to repeaters and repeater to mobile, pages 5-6, sections [0075-0077 and 0080-0081]). But Bims or Trompower does not mention wherein an access point further comprising a transceiver for communicating directly with the mobile terminal and wherein the selector is further arranged to select between the repeater points and the direct access point communication transceiver for transmitting to the terminal.

However, Proctor teaches wherein the access point comprising a transceiver for communicating directly with the mobile terminal and wherein the selector is further arranged to select between the repeater points and the direct access point communication transceiver for transmitting to the terminal (see fig. 1, access point 100, the link 102 and 103 for communicating directly with the mobile terminal 104 and 105, and repeater points 200 and 204, pages 3-4, sections [0029-0030]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above combination of teaching of Bims and Trompower with Proctor, thereto in order to use repeater points to retransmit packets beyond a range limited by propagation path constrains through with an attenuation of signal strength along obstructed paths (see Proctor page 4, section [0030]).

Regarding claim 12, Bims teaches the direct access point transceiver communication with repeater points for transmitting to the terminal (see figs. 5A and 6A, the communication link with access point to repeaters and repeater to mobile, pages 5-6, sections [0075-0077 and 0080-0081]). But Bims or Trompower does not mention wherein an access point further comprising a transceiver for communicating directly with the mobile terminal and wherein the selector is

further arranged to select between the repeater points and the direct access point communication transceiver for transmitting to the terminal.

However, Proctor teaches wherein the access point comprising a transceiver for communicating directly with the mobile terminal and wherein the selector is further arranged to select between the repeater points and the direct access point communication transceiver for transmitting to the terminal (see fig. 1, access point 100, the link 102 and 103 for communicating directly with the mobile terminal 104 and 105, and repeater points 200 and 204, pages 3-4, sections [0029-0030]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above combination of teaching of Bims and Trompower with Proctor, thereto in order to use repeater points to retransmit packets beyond a range limited by propagation path constrains through with an attenuation of signal strength along obstructed paths (see Proctor page 4, section [0030]).

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bims (U.S. Pub. No. 2005/0153719) in view of Trompower (U.S. Patent No. 6,132,306) further in view of Gumaste (U.S. Patent No. 7,035,539).

Regarding claim 9, Bims teaches the access point and repeater points (see Bims's figs. 3, 5A and 6A, access point 301, repeaters 302-1 and 302-2, and mobile terminal 601, page 2, sections [0034-0036]). But Bims or Trompower does not mention the access and repeater points are located to form a pyramid in 3D space.

However, Gumaste teaches the communication sub-network 10, that includes four interconnected nodes 12, this is input and output ports. By logical representation, these four nodes 12 forming the sub-network as four points a pyramid with interconnections forming the edges of the pyramid (see fig. 1, col. 2, lines 49-57).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above combination of the teaching of Bims and Trompower with Gumaste, thereto in order to provide a building block with one or more of these sub-networks to be interconnected to form of communication networks of any appropriated size (see Gumaste col. 2, lines 55-60).

***Conclusion***

8. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks
Washington, D.C. 20231

**or faxed to:**

**(571) 273-8300, (for Technology Center 2600 only)**

*Hand-delivered responses should be brought to the Customer Service Window (now located at the **Randolph Building, 401 Dulany Street, Alexandria, VA 22314).***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan Trinh whose telephone number is (571) 272-7888. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor, Anderson, Matthew D., can be reached at (571) 272-4177.

The fax phone number for the organization where this application or proceeding is assigned is **(571) 273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Technology Center 2600 Customer Service Office** whose telephone number is **(703) 306-0377**.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tan H. Trinh
Division 2618
November 9, 2006

**PATENT EXAMINER**
**TRINH,TAN**